OIPE
JUL 14 2005
JC22
PATENT & TRADEMARK OFFICE

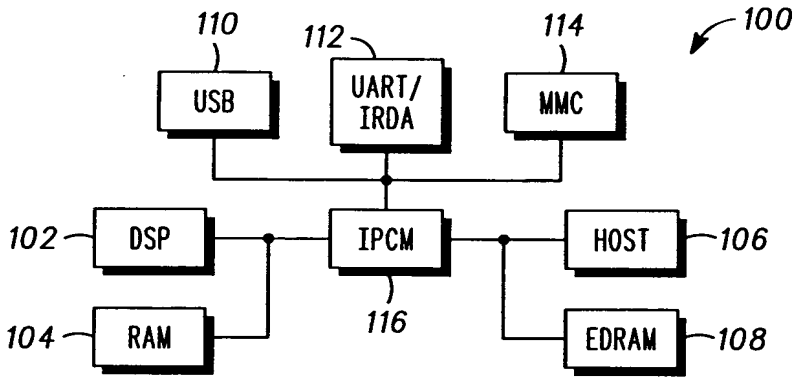


FIG.1

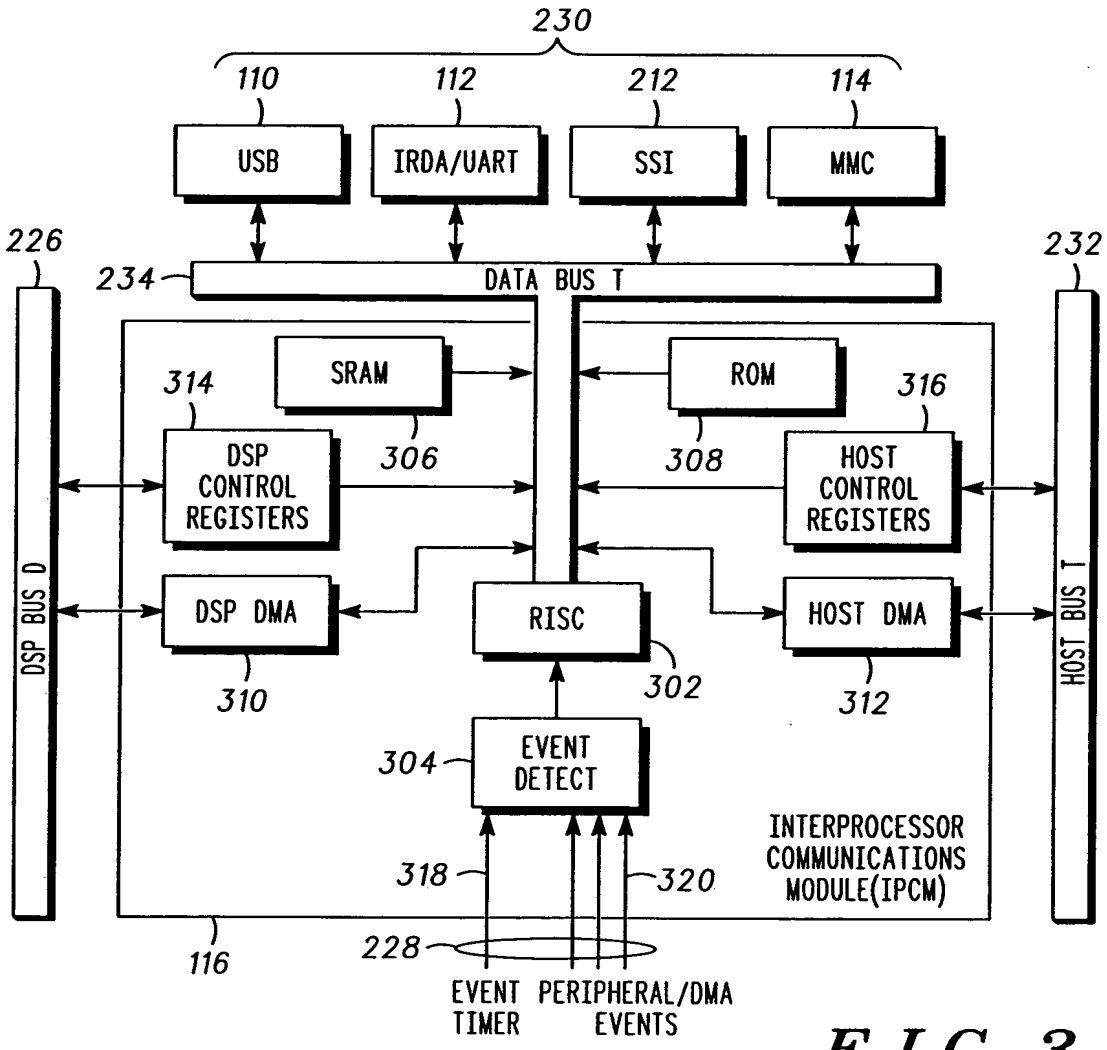


FIG.3

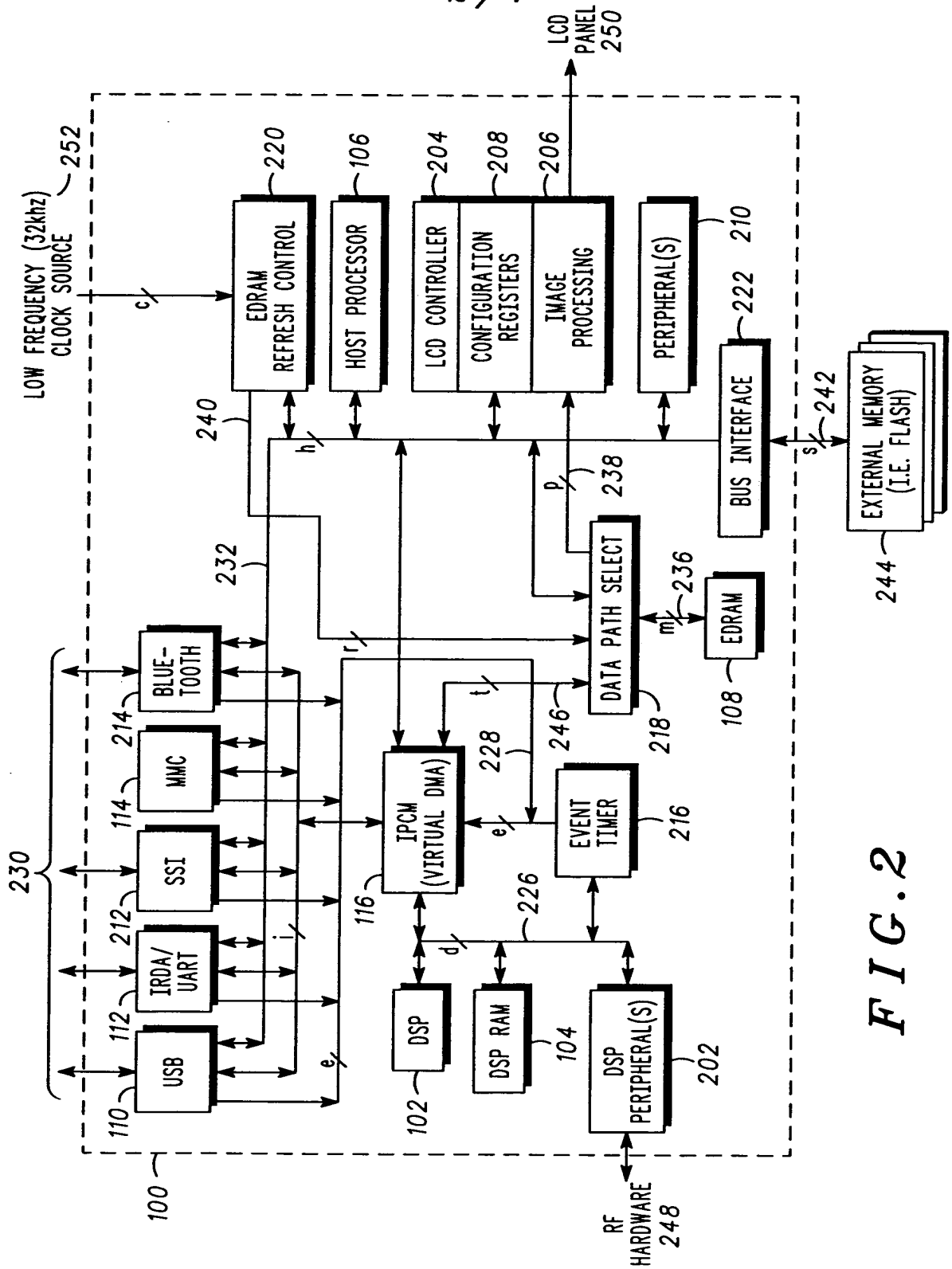

LCD PANEL 250
LOW FREQUENCY (32khz) CLOCK SOURCE 252
EDRAM REFRESH CONTROL 220
HOST PROCESSOR 106
LCD CONTROLLER 204
CONFIGURATION REGISTERS 208
IMAGE PROCESSING 206
PERIPHERAL(S) 210
BUS INTERFACE 222
EXTERNAL MEMORY (I.E. FLASH) 244
DATA PATH SELECT 218
EDRAM 108
BLUE-TOOTH 214
MMC 114
SSI 212
IRDA/ UART 112
USB 110
IPCM (VIRTUAL DMA) 116
EVENT TIMER 216
DSP 102
DSP RAM 104
DSP PERIPHERAL(S) 202
RF HARDWARE 248
100
230
232
240
238
236
246
228
226
242

FIG. 2

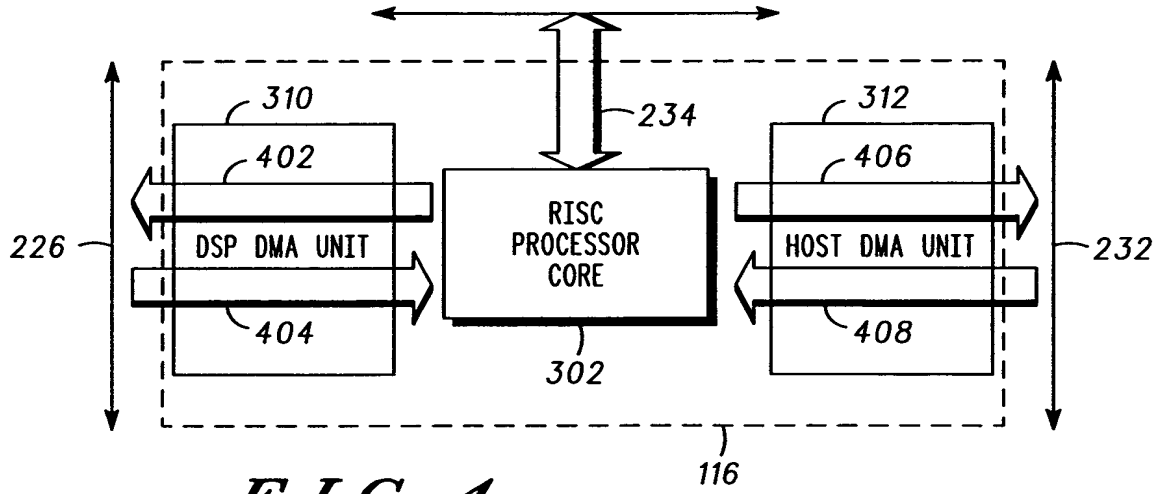
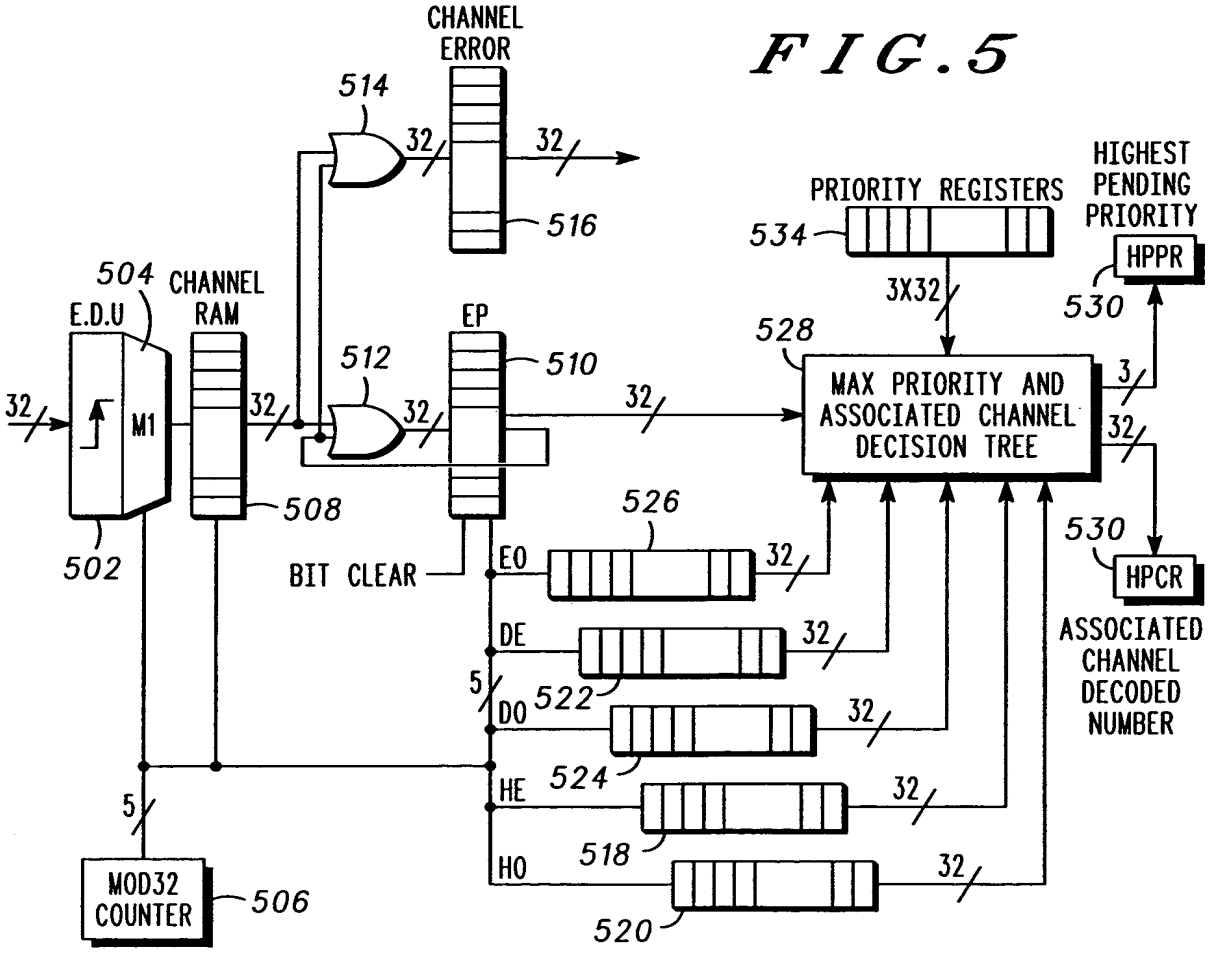

310
402
DSP DMA UNIT
404
234
RISC
PROCESSOR
CORE
302
312
406
HOST DMA UNIT
408
226
232
116

FIG. 4

FIG. 5


CHANNEL
ERROR
514
32
32
516
504
E.D.U
CHANNEL
RAM
512
EP
510
32
M1
32
32
32
508
502
BIT CLEAR
526
EO
32
DE
32
5
DO
522
32
HE
524
32
5
MOD32
COUNTER
506
HO
518
32
520
PRIORITY REGISTERS
534
3X32
528
MAX PRIORITY AND
ASSOCIATED CHANNEL
DECISION TREE
3
32
HIGHEST
PENDING
PRIORITY
HPPR
530
530
HPCR
ASSOCIATED
CHANNEL
DECODED
NUMBER

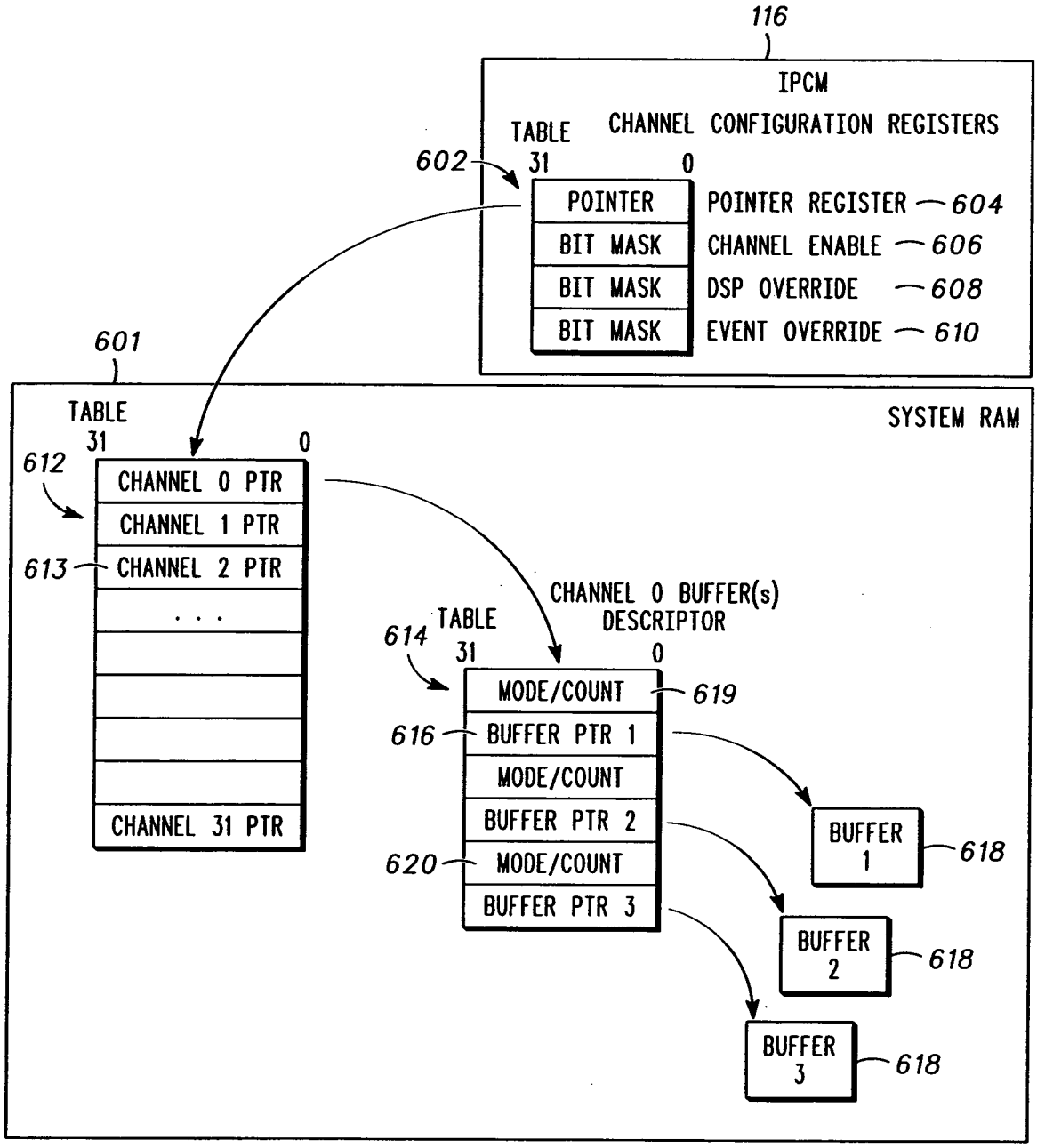

116
IPCM
TABLE
CHANNEL CONFIGURATION REGISTERS
602
31
0
POINTER
POINTER REGISTER
604
BIT MASK
CHANNEL ENABLE
606
BIT MASK
DSP OVERRIDE
608
BIT MASK
EVENT OVERRIDE
610
601
SYSTEM RAM
TABLE
31
0
612
CHANNEL 0 PTR
CHANNEL 1 PTR
613
CHANNEL 2 PTR
. . .
CHANNEL 31 PTR
CHANNEL 0 BUFFER(s)
DESCRIPTOR
614
TABLE
31
0
MODE/COUNT
619
616
BUFFER PTR 1
MODE/COUNT
BUFFER PTR 2
620
MODE/COUNT
BUFFER PTR 3
BUFFER 1
618
BUFFER 2
618
BUFFER 3
618

FIG.6

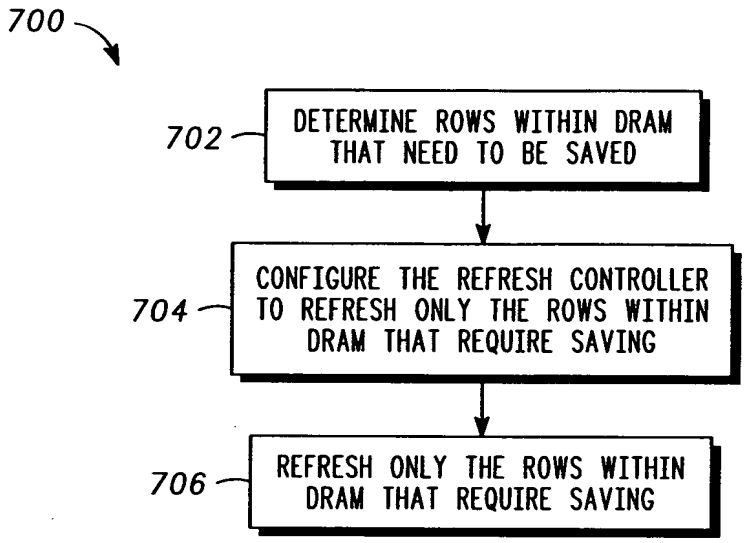

700
702
DETERMINE ROWS WITHIN DRAM THAT NEED TO BE SAVED
704
CONFIGURE THE REFRESH CONTROLLER TO REFRESH ONLY THE ROWS WITHIN DRAM THAT REQUIRE SAVING
706
REFRESH ONLY THE ROWS WITHIN DRAM THAT REQUIRE SAVING

FIG. 7

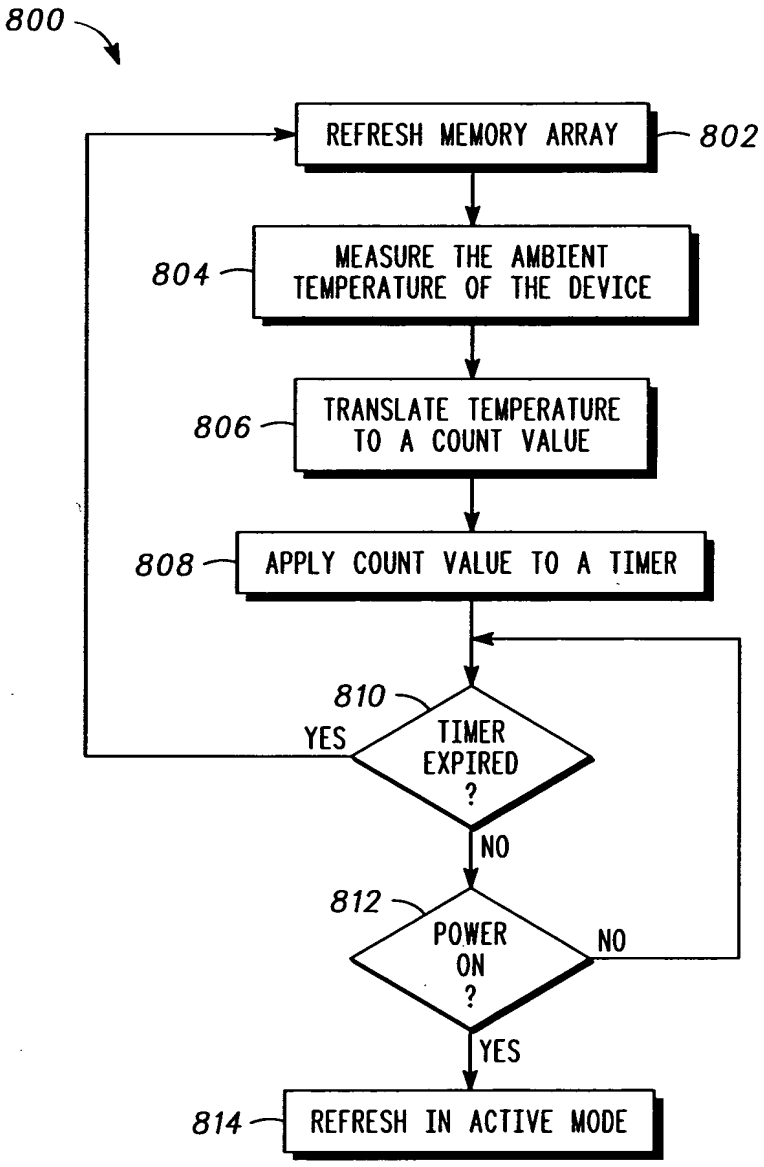

800
REFRESH MEMORY ARRAY
802
MEASURE THE AMBIENT TEMPERATURE OF THE DEVICE
804
TRANSLATE TEMPERATURE TO A COUNT VALUE
806
APPLY COUNT VALUE TO A TIMER
808
810
TIMER EXPIRED ?
YES
NO
812
POWER ON ?
NO
YES
REFRESH IN ACTIVE MODE
814

FIG. 8

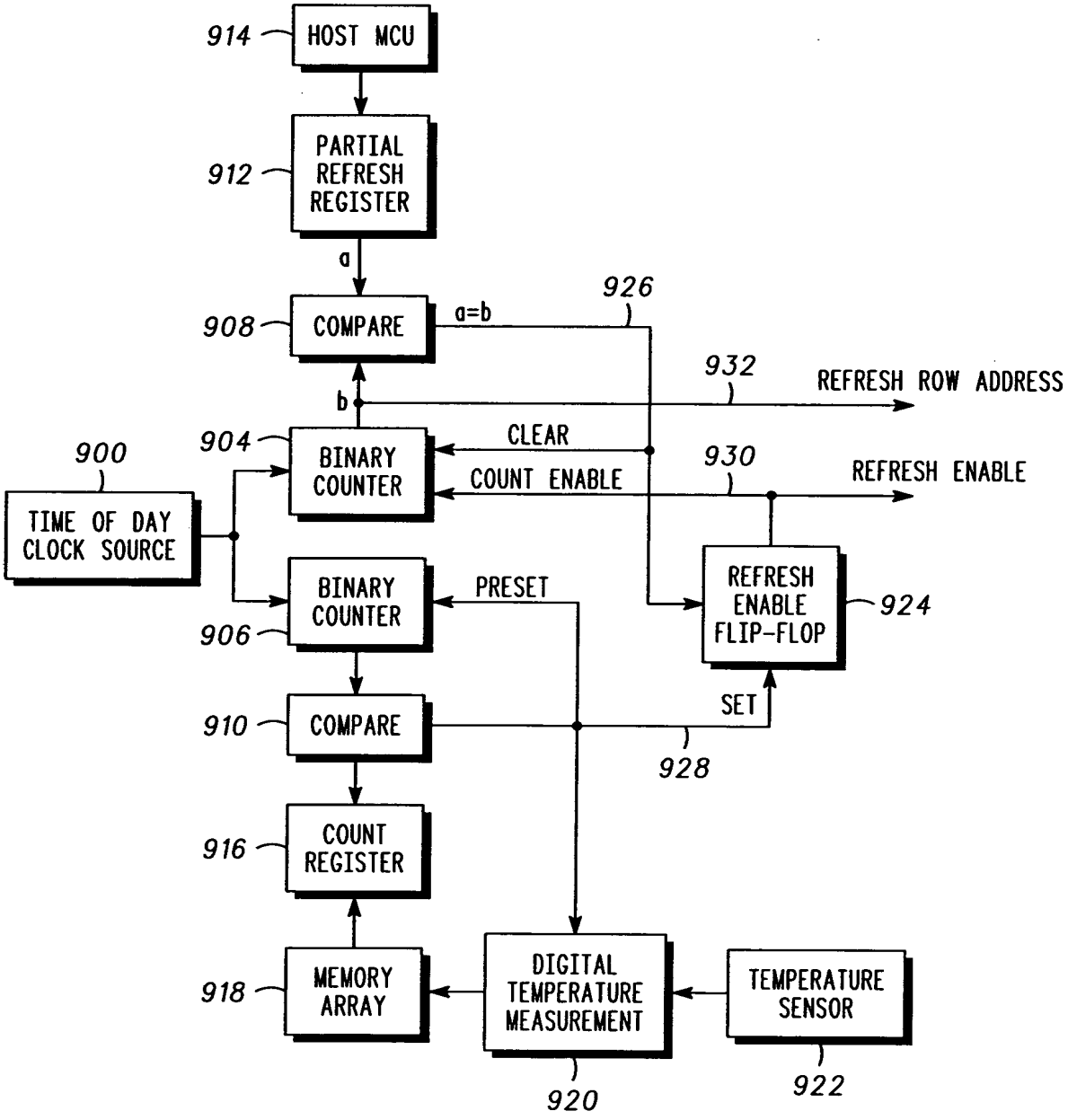

914
HOST MCU
912
PARTIAL REFRESH REGISTER
a
908
COMPARE
a=b
926
932
REFRESH ROW ADDRESS
b
904
BINARY COUNTER
CLEAR
COUNT ENABLE
930
REFRESH ENABLE
900
TIME OF DAY CLOCK SOURCE
BINARY COUNTER
PRESET
906
REFRESH ENABLE FLIP-FLOP
924
910
COMPARE
SET
928
916
COUNT REGISTER
918
MEMORY ARRAY
DIGITAL TEMPERATURE MEASUREMENT
TEMPERATURE SENSOR
920
922

FIG. 9